

## **REMARKS**

The present filing is responsive to the Office Action.

### **Summary of the Response**

Claim 1 has been amended. Claims 11-19 have been previously withdrawn. Claim 20 has been canceled. Claims 1-19 remain pending in this application. Reexamination and reconsideration of the present application as amended are respectfully requested.

### **Claim Amendment Should be Entered After Final**

Claim 1 has been amended to include all the limitations of its direct dependent claim 20 as previously presented. As such, claim 1 as amended (i.e., previously presented claim 20) does not introduce any new issue after final which would require further consideration. The amendment to claim 1 therefore should be entered as a matter of right.

Should the Examiner reject claim 1 as amended (i.e., previously presented claim 20) based on new grounds not previously considered, the Examiner should set forth such grounds in the Advisory Action, so that Applicant can consider such grounds for purpose of appeal.

### **Claim Rejections Under 35 USC 102**

Claims 1-5 and 8-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Lam (US 6,541,284). Claims 6-7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lam (US 6,541,284). These rejections are respectfully traversed.

As Applicant noted in the previous response, the claimed invention is directed to a method for assembling a camera module, by first positioning a lens in the direction of its optical axis and with respect to a substrate using a measuring device, and **removing the measuring device before** attaching an image sensor chip to the substrate. Lam does not disclose a **separate measuring device that has a detector, which is in addition to an image sensor chip, and which is being removed during the process.** Lam instead discloses an IC chip package 80, which requires aligning the focus of its lens 89 and frame structure 91 with respect to an image sensor 101 (see, Fig. 16 in Lam). The image sensor 101 is not being removed after alignment of the lens 89 and frame structure 91, as the image sensor 101 is part of the final assembly of the IC chip package 80. There is clearly no separate measuring device having a detector. **The image sensor 101 does not correspond to the recited measuring device that is being removed in the recited process.** The image sensor 101 is not removed at any time after assembly, let alone being removed after alignment of the lens 89 and frame structure 91. There is no reason to remove the image sensor 101, since the same image sensor 101 is part of the final IC chip package 80.

Lam therefore does not disclose the recited combination of steps including aligning a detector of a measuring device with the optical axis of the lens, **and removing the measuring device**, and further removing the measuring device **before** the image sensor chip is attached to the substrate, as recited in claim 1 as amended (previously presented claim 20).

#### **Rebuttal to Examiner's Statements in Present Action**

Claim 1 as amended (previously presented claim 20) recites in part:

a) aligning a **detector of a measuring device** with the optical axis of the lens;

...

e) removing the measuring device; and

f) attaching the image sensor chip to the substrate, wherein the measuring device is removed before the image sensor chip is attached to the substrate, so as to align the light-sensitive surface of the image sensor chip with the optical axis of the lens.

The Examiner referred to Fig. 16 in Lam, pointing to item 97 to correspond to the recited image sensor chip, and item 115 to correspond to the recited measuring device. However, item 97 refers to the overall IC chip package (see, Lam at column 5, line 6; Fig. 7), not an image sensor chip, and item 115 refers to an “electronic focus testing equipment” to which the IC package 80 is connected (see, Lam at column 7, lines 5-6). Lam instead discloses an image sensor chip 103 on an image sensor die 101 (see, e.g., Figs. 8 and 12, and column 5, lines 43-44).

If the Examiner intended to refer to item 97 to correspond to the recited image sensor chip, then it is clear that Lam does teach removing the “electronic focus testing equipment 115” **before** attaching item 97 to the substrate.

If however the Examiner intended to refer to item 101 to correspond to the recited image sensor chip, then it is also clear that Lam does not teach removing the “electronic focus testing equipment 115” **before** attaching item 101 to the substrate.

Applicant respectfully submits that the image sensor 101 in Lam is a necessary part for conducting focus alignment of its lens, using the electronic focus testing equipment 115 (see, Lam at column 7, lines 5+). Therefore in Lam, the image sensor 101 must be in place on the substrate before focus alignment testing using the electronic focus testing equipment 115, and then the electronic focus testing equipment 115 is disconnected from the substrate, but there is no subsequent step of attaching the image sensor 101 to the substrate (i.e., without

reattaching the image sensor 101 back on the substrate after the electronic focus testing equipment 115 has been disconnected, because the image sensor 101 was never removed once it has been attached to the substrate for focus alignment of the lens). In other words, Lam is doing exactly opposite to the recited process steps in which lens alignment is tested using the recited measuring device (including the recited detector), and then the measuring device is removed before the image sensor chip is attached to the substrate.

On page 3 of the present action, the Examiner alleged that for the recited step (e), “note that it is inherent that the measuring device is removed once the lens has been brought into position”. Applicant does not understand how this could be “inherent” in Lam, when Lam specifically discloses that the image sensor 101, which is part of the necessary part for focus alignment in Lam, is to remain in place on the substrate. Applicant respectfully requests the Examiner to establish such “inherency” in the disclosure in Lam.

Further, Applicant respectfully submits that removing of the electronic focus testing equipment 115 in Lam does not and cannot correspond to the recited removing of the measuring device, so as to align the light sensitive surface of the image sensor chip with the optical axis of the lens. The removal of the electronic focus testing equipment 115 does not include the removal of the image sensor 101. (As noted above, the image sensor 101 should not be removed in Lam.) In contrast, the recited measuring device includes a detector (“aligning a detector of a measuring device with the optical axis of the lens”), and when the recited measuring device is removed, the detector would necessarily be removed as part of the measuring device. It is after the removal of the measuring device with the detector, that the image sensor chip is then attached to the substrate. In contrast, Lam first applies the image sensor 101 to align the focus of its lens, and then leaves the image sensor 101 in place after focus alignment. If Lam removes the image

sensor 101 after focus alignment, the IC chip package 80 (or 97) would be without the image sensor 101. The electronic focus testing equipment 115 can only be disconnected from the substrate upon confirming focus alignment.

In view of the foregoing, Applicant respectfully submits that the Examiner failed to establish a prima facie case of anticipation based on Lam.

Accordingly, independent claim 1 is not anticipated by Lam. All claims dependent therefrom (including the withdrawn claims 11-19) are likewise not anticipated by Lam for at least the above reasons.

Claim 1 as amended (i.e., previously presented claim 20) is not rendered obvious over Lam. The Examiner alleged that “it would have been obvious ... to remove the measuring device (115) of Lam before attaching the image sensor chip to the substrate (83) because once the chip is in focus the measuring device serves no purpose and would be an obstruction if it remains connected.” As Applicant noted above, the removal of the device 115 in Lam does not and should not correspond to the removal of the recited measuring device. The removal of the electronic focus testing equipment 115 does not include the removal of the image sensor 101. (As noted above, the image sensor 101 should not be removed in Lam.) However, in claim 1, the recited measuring device includes a detector, and when the recited measuring device is removed, the detector would necessarily be removed as part of the measuring device. It is after the removal of the measuring device with the detector, that the image sensor chip is then attached to the substrate. In contrast, Lam first applies the image sensor 101 to align the focus of its lens, and then leaves the image sensor 101 in place after focus alignment. Accordingly, even if Lam can somehow be applied, further modification of Lam is required to obtain the recited invention

in claim 1 as amended (i.e., previously presented claim 20). The Examiner therefore has not established a prima facie case of obviousness.

## **CONCLUSION**

In view of all the foregoing, Applicant submits that the claims pending in this application are patentable over the references of record and are in condition for allowance. Such action at an early date is earnestly solicited. **The Examiner is invited to call the undersigned representative to discuss any outstanding issues that may not have been adequately addressed in this response.**

The Assistant Commissioner is hereby authorized to charge any additional fees under 37 C.F.R. §§ 1.16 and 1.17 that may be required by this transmittal and associated documents, or to credit any overpayment to **Deposit Account No. 501288** referencing the attorney docket number of this application.

Respectfully submitted,

Dated: April 20, 2009

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